UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/589,142	06/07/2000	Shigefumi Masuda	FUJI 17.390	8638

26304 7590 03/23/2005

KATTEN MUCHIN ZAVIS ROSENMAN
575 MADISON AVENUE
NEW YORK, NY 10022-2585

EXAMINER	
SHANG, ANNAN Q	
ART UNIT	**PAPER NUMBER**
2614	

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/589,142	MASUDA ET AL.	
	Examiner	Art Unit	
	Annan Q Shang	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/06/04 has been entered.

Response to Arguments

2. Applicant's arguments filed 12/06/04 have been fully considered but they are not persuasive. With respect to claims 1, applicant discusses the system of the applied art of record in Curry (3,750,022). Applicant then states that: "In the system disclosed by Applicants', in sharp contrast to Curry there is no need for a device at the headend to first locate and isolate the source of the noise by an extensive search operation and then control line control units to eliminate the noise source," and discusses alleged benefits (page 6, lines 21-27).

In response, examiner disagrees, besides the teaching of Noise Measuring Equipment (Noise-ME) 25, located at HE 13, which monitors and measures, in a conventional manner, the noise levels of the upstream transmissions to LPC 16 and generate a signal to control LPC 16 to control subsequent upstream transmissions to minimize the reception of upstream noise and interference, if any noise exceeds a

preselected threshold level (col. 3, lines 31-42), Curry further teaches that the Noise-ME 25 may be located at the PH-Sub 27 (col. 20, lines 12-19), to perform the above stated function of Noise-ME 25. Furthermore PH-Sub 27 is also located between the HE 13 and a plurality of Subscriber Terminals (STS). Hence the amended claim 1 does not overcome the prior art of record Curry.

Applicant further argues that: "Applicants' claimed noise-reduction units provided at the terminals boost transmission levels to offset the noise sources, which are primarily located at the terminal ends. Thus, unlike the system of Curry, each node of Applicant's system need not be equipped with a noise-reduction device, noise-control device and isolation and control means."

In response, examiner disagrees since the claimed language states "a noise-control device, provided at the terminals, which boosts a transmission level..." the claimed language requires terminals and not terminal ends as argue by Applicants' and Curry clearly teaches in figures 1 and 5, terminals such as PH-Subs 87, 57, 39 and 29 which boosts transmission levels to of the upstream signals..."

Hence the amended claim limitation does not overcome the prior act of records since Curry teaches providing a Noise-ME 25 and Line-CC located at PH-Sub 27, which is between HE 13 and plurality of PH-Subs 87, 57, 39 and 29, where Noise-ME 25 and Line-CC detects the noise increase regarding the upstream signals and generates a control signal indicative of the noise increase, and is triggered by the control signal to attenuate the upstream signals by an increased amount, as discussed below in the Office Action.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by **Curry et al (3,750,022)**.

With respect to claims 1, note the **Curry et al** reference figures 1, 3 and 5 disclose a system for minimizing upstream noise in a subscriber response cable television system and further disclose a system for reducing noise in a signal line, through which signals and downward signals are transmitted between a center (Head End "HE" 13) and terminals comprising:

the claimed "a noise-reduction device, provided between the center and the terminals..." is met by Line Control Circuit (Line-CC) 27 and Noise Measuring Equipment (Noise-ME) 25 (Line-CC/Noise-ME) 27/25 (col. 5, lines 5-10 and col. 20, lines 12-34), which are contained in Phantom Subscriber (PH-Sub) 29 and provided between HE 13 "center" and a plurality of PH-Subs 87, 57, 39 and 29 "terminals," detects a noise increase regarding the upstream "upward" signals on the signal line and generates a control signal indicative of the noise increase, and is triggered by the control signal which instructs Switchable Attenuators (SA) 35 (fig. 5) to control attenuation of the upstream signals by an increased amount (col. 3, lines 34-41); note PH-Sub 29 further includes Noise-ME 25, such as Noise-ME 25 at HE 13, col. 20, lines

12-34, and performs identical functions as NME 25 at HE 13, i.e., monitors and measures, in a conventional manner, the noise levels of the upstream transmissions to LCC 27 and any noise exceeding a preselected threshold level causes NME 25 of PH-Sub 29 to generate a signal which causes the LCC 27 to control subsequent upstream transmissions to minimize the reception of upstream noise and interference (col. 3, lines 31-42).

the claimed "noise control device, provided at the terminals, which boosts a transmission level of the upward signals by an amount compensating for the attenuation of the upward signals by said noise-reduction device" is met by phantom subscriber 39, which is operative to instruct line amplifier 43 at line control unit 38 (claimed terminal) to boost transmission levels. As taught in column 9, lines 46-58, line amplifier 43 operates under control of phantom subscriber 39 to boost a transmission level in response to commands from LPC 16 or Line-CC detecting an increased upstream noise level. The signal then passes through SA 35, which lies between amplifier 43 and the HE (see Figure 5).

As to claim 2, Curry further discloses where Line-CC/Noise-ME 27/25 NME 25 of PH-Sub 29 including a Noise-ME 25 "noise-level-check unit" which compares the signal component and a noise component and detects a noise increase based on the comparison or well known signal to noise ration (col. 3, lines 31-41 and col. 9, lines 3-8) and Line-CC/Noise-ME 27/25 NME 25 of PH-Sub 29 further includes SA 35 "an attenuator" that attenuates the upstream signals by the increased amount if the Noise-

ME 25 detects the increase, and transmits a tone signal via downward signals if Noise-ME 25 detects the noise increase (col. 3, lines 59-65 and col. 20, lines 15-30).

As to claim 3, the claimed noise-control-device including a tone-detection unit which detects the tone signal is met by PH-Sub 39 which operates in response to instructions from LPC 16 or Line-CC to vary amplifier gain in the presence of noise. Command register 213 of Figure 10 registers commands from control signals (col. 3, lines 59-65); the claimed "variable amplifier to boost amplification of upward signals by an amount compensating for the attenuation of the upward signals by said attenuator" is met as noted above by variable amplifier 43 which increases gain by substantially the same amount as the signal is attenuated (col. 9, lines 46-58).

As to claim 4, the claimed "tone or more noise reduction devices . . . are provided in one or more of a two-way amplification unit and splitter units provided between the center and the terminals" is met by phantom subscriber unit 29 and SA 35 being provided within line control unit 27 (fig. 3) and includes switching units 111, 113 . . . and filters 106, I 07 . . . as well as amplifiers 137 and 139 which constitute a "bi-directional amplification unit" as claimed.

As to claim 5, the claimed boosting transmission levels by an amount "compensating for a total attenuation of the upward signals of all of said one or more noise-reduction devices" is met as noted above by boosting signals using variable amplifier 43 to increase gain by substantially the same amount as the signal is attenuated (col. 9, lines 46-58).

As to claim 7, the obtaining of a level of a signal component is met as noted above by detecting a noise level with Noise-ME 25. As is well known and taught in col. 9, lines 3-8, a signal to noise ratio is determined during this process. As taught in col. 3, lines 59-65 an upper pilot tone may be inserted for testing or control purposes into the 116 to 120MHz band, meeting the claimed high frequency signal included within a frequency range and command register 213 (fig. 10), registers commands from control signals. Curry inherently teaches the claimed "subtraction unit" to obtaining a noise level from an upstream signal (col. 9-10), note the numerous mathematical operations including subtraction to obtain signal levels are performed. Noise-ME 25 also compares a noise level with a threshold or "reference level" and detects a noise increase based on the comparison (col. 3, lines 34-42).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 6 are rejected under 35 U.S.C. 1O3(a) as being unpatentable over **Curry et al. (3,750,022)** in view of **Schwartzman et al. (6,385,773).**

As claim 6, the claimed noise-reduction device comprising a unit for "obtaining a level of a signal component demodulated through coherent detection of the upward signals" is taught by Curry with line control circuit 27 that may include a unit for

sampling noise (col. 20, lines 15-30) to monitor and measure noise in a conventional manner (col. 3, lines 34-42). As is well known and taught in column 9, lines 3-8, a signal to noise ratio is determined during this process to determine a measure of noise. Curry fails to teach obtaining a level of noise "through detection of noises observed on the signal line during a time period when no signal component is present."

However, note **Schwmzman** teaches a system and method for determining an optimum upstream frequency channel based on noise and bit-error-rate assessments and further teaches determining an intrinsic power level as a measure of the noise level at a time when no data or signal is being transmitted (col. 11, lines 38-51), comparing a signal level to the level of a noise component (fig. 4, step 408).

Therefore it would have been obvious for one skilled in the art at the time of the invention to modify the system of Curry by monitoring a base noise measurement as taught by Schwartzman in order to ensure a high rate of data integrity (col. 7, lines 57-58).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Freldman et al (6,577,414) disclose subscriber modulation fiber-to-the-home/curb (FTTH/C) access system providing broadband communications.

Farhan et al (6,567,987) disclose digital optical transmitter with improved noise power ratio.

Williams (5,870,513) discloses bi-directional cable network with a mixing tap for suppressing undersirable noise in signals from a remote end of the network.

Williams (5,815,794) discloses undesirable energy suppression system in the return path of a bi-directional cable network having dynamically allocated time slots.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Annan Q Shang** whose telephone number is **571-272-7355**. The examiner can normally be reached on **700am-500pm**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John W Miller** can be reached **571-272-7353**. The fax phone number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the **Electronic Business Center (EBC) at 866-217-9197 (toll-free).**

Annan Q. Shang.

JOHN MILLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600